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WAR FOOD ADMINISTRATION  
Office of Distribution  
Washington 25, D. C.

November 26, 1944

A Report of Survey on  
the Use of Dried Egg Products in Prepared Flour Mixes

By Melvin W. Buster, Chief  
Market Standards and Facilities Section  
Dairy and Poultry Branch

A survey to explore the possibility of utilizing larger quantities of dried egg products, particularly whole dried eggs, in prepared baking flour mixes, was conducted by the War Food Administration by mail during August to October 1944. Expanded use of these products is desirable as a means of utilizing expanded egg production and egg-processing facilities in the interest of improving human nutrition and in contributing to economic stability of the poultry industry in the reconversion period after the war.

Survey forms were mailed to 100 manufacturers of prepared flour mixes, who distribute to retail, institutional, and baking firms.

A total of 41 companies returned the survey forms with the essential information. Of this number, 17 companies reported the quantities of dried whole eggs, dried egg yolk, and dried albumen used during the past 12 months and estimated their probable requirements for the period from July 1, 1944 to June 30, 1945. The other 24 manufacturers reported no use of dried egg products in any of these forms, although 6 companies indicated an interest in the future use of these products, principally of dried yolk and dried albumen.

The following table shows a summary of the quantities of dried egg products used by the 17 companies in the period July 1, 1943 to June 30, 1944, and an estimate of their requirements for the succeeding 12-month period.

Item	Quantity Used July 1943 - July 1944 (Pounds)	Estimated Requirements July 1944 - July 1945 (Pounds)
Dried whole eggs	320,500	321,440
Dried egg yolk	818,523	785,400
Dried albumen	12,320	66,175

Many of the firms referred to the fact that increased use of dried egg products depended upon their obtaining increased allotments of sugar. Consequently, the probable increased consumption is an unknown factor since it is difficult to modify or expand the manufacture of flour mixes containing sugar in the light of the difficulties involved in stretching sugar allotments.

This survey indicates that seven of the reporting manufacturers used whole dried eggs in prepared doughnut flour, certain types of cake mix, gingerbread and waffles. Dried yolk apparently is more widely used in mixes of the type mentioned than is true of whole dried eggs. Dried yolk is also used in prepared flour mixes for biscuits, pancakes, and cookies.

Supplemental Information on Prepared Flour Mix Survey

The following excerpts relative to the use of dried eggs to improve the quality and nutritive value of prepared flour mix were taken from statements of manufacturers of these products:

- (1) "Use of dried powdered whole eggs in the post-war period will depend upon cost and availability. It is possible that we might include dried whole eggs in our pancake flour and buckwheat pancake flour. Based on our production for the past 6 months of 1944, had we included powdered whole eggs in these products, we would have used approximately 40,000 pounds of dried whole eggs."
- (2) "During the period July 1, 1943 to July 1, 1944, we used 1,000 pounds of dried whole eggs. As the price of this product is reduced, we will increase its use in our formula to produce better baking result in such products as muffin flour, whole wheat, raisin whole wheat, and nut raisin whole wheat prepared flour mixes."
- (3) "Previous experiments with dried egg products indicate that the keeping quality is not too good when packed with flour and other materials because rancidity develops in time."
- (4) "Rigid control of moisture content in dried whole eggs is important. Some manufacturers have furnished us with dried egg yolks with moisture content of 3% to 9%. The high moisture product spoiled our goods and resulted in a large loss. We believe a moisture content of about 2 $\frac{1}{2}$ % to 3% is desirable."
- (5) "The storage properties of dried whole eggs are poor, based upon our experience as one of the largest handlers of both imported and domestic dried egg products. This defeats one of the major purposes for which people use such dried products. It is difficult to show any economic advantages for this product as compared to spray dried albumen and yolks for most common purposes. The desired sugar carrying properties can only be secured from sprayed albumen in making candy, meringue powders, marshmallow, and similar products. Dried egg yolk is used in making cakes, ice cream, egg noodles and doughnut flour mixes because of its desirable properties in fat emulsification and the attractive color it imparts to the finished product. In such products resistance to melting and improvement of texture are definitely affected by the presence of any albumen. Some cake mixes and certain types of candy may well utilize dried whole eggs, but it seems that the only real outlet would depend upon an educational campaign directed toward the use of small packages of dried whole eggs for household baking purposes. We believe that fresh shell eggs will be very hard to displace for home use."

Firms that used dried whole eggs and dried yolks emphasized the importance of low-moisture content, a low bacterial count, high solubility, and good yellow color in these products.

The results of the survey are not particularly encouraging to the poultry industry, and especially to the manufacturers of dried whole eggs. However, it is probable that a majority of the manufacturers of flour mixes are not thoroughly familiar with the high quality dried whole egg powder which is now available, or with its possible uses. Research work appears to be definitely needed in determining the economic practicability of various proportions of different dried egg products in present and new mixes as well as the consumer acceptance of such products.

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Reserve

November 23, 1944

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